

## What is Claimed:

1. A method comprising:
  - (a) capturing polypeptides from a sample, wherein the polypeptides comprise target antigen and at least one modified form of target antigen; and
  - (b) specifically measuring captured target antigen.
2. The method of claim 1 wherein the polypeptides are captured with an antibody.
3. The method of claim 1 wherein the polypeptides are captured with a chromatographic sorbent.
4. The method of claim 1 further comprising specifically measuring at least one modified form of target antigen.
5. The method of claim 1 further comprising capturing and measuring a polypeptide interactor of the target antigen.
6. The method of claim 1 wherein the captured polypeptides are measured by mass spectrometry.
7. The method of claim 1 wherein the captured polypeptides are measured by affinity mass spectrometry.
8. The method of claim 1 wherein the polypeptides are measured by SELDI.
9. The method of claim 1 wherein the sample is a subject sample and the method further comprises:
  - (c) correlating the detected target antigen with a clinical parameter in the subject.
10. The method of claim 9 wherein the clinical parameter is presence or absence of a disease associated with the target antigen.
11. A method comprising:

(a) capturing at least one modified form of the target antigen polypeptide from a sample; and

(b) specifically measuring the at least one captured modified form of the target antigen polypeptide.

12. The method of claim 11 wherein the polypeptide is captured with an antibody.

13. The method of claim 11 wherein the polypeptide is captured with a chromatographic sorbent.

14. The method of claim 11 further comprising capturing and measuring a polypeptide interactor of at least one modified form of the target antigen.

15. The method of claim 11 wherein the captured polypeptide is measured by mass spectrometry.

16. The method of claim 11 wherein the captured polypeptide is measured by affinity mass spectrometry.

17. The method of claim 11 wherein the captured polypeptide is measured by SELDI.

18. The method of claim 11 wherein the sample is a subject sample and the method further comprises:

(c) correlating the detected modified form of antigen with a clinical parameter in the subject.

19. The method of any one of claims 11-18 comprising capturing and specifically measuring a plurality of modified forms of the target antigen from the sample.

20. A method comprising:

(a) providing a learning set comprising a plurality of data objects representing subjects, wherein each data object comprises data representing a specific measurement of target antigen from a subject sample and a clinical parameter of the subject; and

(b) determining a correlation between specific measurement of target antigen and the clinical parameters.

21. The method of claim 20 wherein providing the learning set comprises:

- i. capturing target antigen from the sample with an antibody, and
- ii. specifically measuring captured target antigen.

22. The method of claim 21 wherein the captured target antigen is measured by affinity mass spectrometry.

23. The method of claim 21 wherein the captured target antigen is measured by SELDI.

24. A method comprising:

(a) providing a learning set comprising a plurality of data objects representing subjects, wherein the subjects are classified into a plurality of different clinical parameters and wherein each data object comprises data representing specific measurement of a plurality of polypeptides from a subject sample wherein the polypeptides are selected from target antigen and at least one modified form of target antigen; and

(b) training a learning algorithm with the learning set, thereby generating a classification model, wherein the classification model classifies a data object according to clinical parameter.

25. The method of claim 24 wherein the clinical parameters are selected from presence or absence of disease; risk of disease, stage of disease; response to treatment of disease; or class of disease.

26. The method of claim 24 wherein the learning set further comprises data representing specific measurement of a polypeptide interactor of the target antigen.

27. The method of claim 24 wherein providing the learning set comprises:

- i. capturing the polypeptides from the sample with an antibody, and
- ii. specifically measuring captured polypeptides.

28. The method of claim 27 wherein the captured polypeptides are measured by affinity mass spectrometry.

29. The method of claim 27 wherein the captured polypeptides are measured by SELDI.

30. The method of claim 24 wherein the learning algorithm is unsupervised.

31. The method of claim 24 wherein the learning algorithm is supervised and each data object further comprises data representing the clinical parameter of the subject.

32. The method of claim 24 wherein further comprising using the classification model on subject data from a subject of unknown clinical parameter to classify the subject according to clinical parameter.

33. The method of claim 24 wherein the supervised learning algorithm is selected from linear regression processes, binary decision trees, artificial neural networks, discriminant analyses, logistic classifiers, and support vector classifiers.

34. The method of claim 33 wherein the supervised learning algorithm is a recursive partitioning processes.

35. A method for qualifying an immunoassay calibrator for an target antigen immunoassay comprising:

(a) providing an immunoassay calibrator for an target antigen immunoassay, wherein the calibrator comprises a designated concentration of target antigen;

(b) capturing polypeptides from the calibrator with an anti-target antigen antibody; and

(c) specifically measuring an amount of at least one polypeptide selected from target antigen and modified form of the target antigen captured by the antibody, whereby the measured amount provides an indication of the quality of the immunoassay calibrator.

36. The method of claim 35 comprising specifically measuring target antigen.

37. The method of claim 35 comprising specifically measuring a modified form of the target antigen.

38. The method of claim 35 comprising specifically measuring target antigen and a modified form of the target antigen.

39. The method of claim 35 comprising determining the amount of target antigen captured as a function of total polypeptide captured by the anti-target antigen antibody.

40. The method of claim 39 wherein the anti-target antigen antibody is an antibody used with the immunoassay calibrator in a commercial immunoassay.

41. The method of claim 35 wherein the amount is measured by affinity mass spectrometry.

42. The method of claim 35 wherein the amount is measured by SELDI.

43. A method comprising measuring modified forms of an anti-target antigen antibody in an antibody reagent for a target antigen immunoassay.

44. The method of claim 43 further comprising measuring un-modified forms of the anti-target antigen antibody in the reagent and comparing the measurement of un-modified antibody to the measurement of modified forms of the antibody.

45. The method of claim 43 wherein the anti-target antigen antibody is a monoclonal antibody or a polyclonal antibody.

46. The method of claim 43 comprising specifically measuring the amount of at least one modified form of the target antigen in the immunoassay calibration sample.

47. The method of claim 43 wherein the measurements are performed by affinity mass spectrometry.

48. A method for discovering polypeptides that interact with target antigen comprising:

(a) capturing target antigen from a sample with a biospecific capture reagent;

(b) removing molecules that are not bound to the biospecific capture reagent or the target antigen; and

(c) measuring molecules bound to the captured target antigen.

49. The method of claim 48 wherein the bound molecules are measured by affinity mass spectrometry.

50. The method of claim 48 wherein the bound molecules are measured by SELDI.